

What is claimed is:

1. A method of increasing the bioavailability of azithromycin, comprising co-administering, to a mammal in need of such treatment, a combination of
5 azithromycin and a p-gp inhibitor.
2. A method as defined in claim 1, wherein said azithromycin and p-gp inhibitor are each administered in an amount such that the combination is antimicrobially effective.
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3. A method as defined in claim 1, wherein said bioavailability increase is measured in blood serum.
4. A method as defined in claim 1, wherein said p-gp inhibitor and
15 azithromycin are co-administered separately.
5. A method as defined in claim 4, wherein said p-gp inhibitor and azithromycin are co-administered by different routes.
- 20 6. A method as defined in claim 5, wherein said p-gp inhibitor is administered orally and said azithromycin is administered intravenously.
7. A method as defined in claim 4, wherein said azithromycin and said p-gp inhibitor are both administered orally.
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8. A method as defined in claim 1, wherein said p-gp inhibitor and azithromycin are co-administered together in a composition.
9. A method as defined in claim 1, wherein said p-gp inhibitor is co-
30 administered in an amount such that the oral bioavailability of azithromycin is increased by at least 25%.

10. A method as defined in claim 9, wherein said p-gp inhibitor is co-administered in an amount such that the oral bioavailability of azithromycin is increased by at least 50%.

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11. A method as defined in claim 10, wherein said p-gp inhibitor is co-administered in an amount such that the oral bioavailability of azithromycin is increased by at least 75%.

10 12. A method as defined in claim 1, wherein said increase is measured as an increase in AUC relative to dosing in the absence of a p-gp inhibitor.

13. A method as defined in claim 1, wherein said p-gp inhibitor is a surfactant.

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14. A method as defined in claim 1, wherein said p-gp inhibitor is a polymer.

15. A method as defined in claim 14, wherein said polymer is selected from block co-polymers of poly(propylene oxide) and poly(ethylene oxide).

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16. A method as defined in claim 1, wherein said p-gp inhibitor is itself a drug.

25 17. A method as defined in claim 1, wherein said mammal is a human.

18. A method of increasing the C_{max} of azithromycin, comprising co-administering, to a mammal in need of such treatment, a combination of azithromycin and a p-gp inhibitor.

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19. A method as defined in claim 18, wherein said azithromycin and p-gp inhibitor are each administered in an amount such that the combination is antimicrobially effective.

5 20. A method as defined in claim 18, wherein said Cmax increase is measured in blood serum.

21. A method as defined in claim 18, wherein said p-gp inhibitor and azithromycin are co-administered separately.

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22. A method as defined in claim 21, wherein said p-gp inhibitor and azithromycin are co-administered by different routes.

15 23. A method as defined in claim 22, wherein said p-gp inhibitor is administered orally and said azithromycin is administered intravenously.

24. A method as defined in claim 21, wherein said azithromycin and said p-gp inhibitor are both administered orally.

20 25. A method as defined in claim 18, wherein said p-gp inhibitor and azithromycin are co-administered together in a composition.

26. A method as defined in claim 18, wherein said p-gp inhibitor is co-administered in an amount such that the Cmax of azithromycin is increased
25 by at least 25%.

27. A method as defined in claim 26, wherein said p-gp inhibitor is co-administered in an amount such that the Cmax of azithromycin is increased by at least 50%.

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28. A method as defined in claim 27, wherein said p-gp inhibitor is co-administered in an amount such that the Cmax of azithromycin is increased by at least 75%.

5 29. A method as defined in claim 18, wherein said p-gp inhibitor is a surfactant.

30. A method as defined in claim 18, wherein said p-gp inhibitor is a polymer.

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31. A method as defined in claim 30, wherein said polymer is selected from block co-polymers of poly(propylene oxide) and poly(ethylene oxide).

15 32. A method as defined in claim 18, wherein said p-gp inhibitor is itself a drug.

33. A method as defined in claim 18, wherein said mammal is a human.

20 34. A method of increasing the concentration of azithromycin in a cell or a tissue, comprising co-administering, to a mammal in need of such treatment, a combination of azithromycin and a p-gp inhibitor.

25 35. A method as defined in claim 34, wherein said azithromycin and p-gp inhibitor are each administered in an amount such that the combination is antimicrobially effective.

36. A method as defined in claim 34, wherein said p-gp inhibitor and azithromycin are co-administered separately.

30 37. A method as defined in claim 36, wherein said p-gp inhibitor and azithromycin are co-administered by different routes.

38. A method as defined in claim 37, wherein said p-gp inhibitor is administered orally and said azithromycin is administered intravenously.

5 39. A method as defined in claim 34, wherein said azithromycin and said p-gp inhibitor are both administered orally.

40. A method as defined in claim 34, wherein said p-gp inhibitor and azithromycin are co-administered together in a composition.

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41. A method as defined in claim 34, wherein said p-gp inhibitor is co-administered in an amount such that said concentration of azithromycin is increased by at least 25%.

15 42. A method as defined in claim 41, wherein said p-gp inhibitor is co-administered in an amount such that said concentration of azithromycin is increased by at least 50%.

20 43. A method as defined in claim 42, wherein said p-gp inhibitor is co-administered in an amount such that said concentration of azithromycin is increased by at least 75%.

44. A method as defined in claim 34, wherein said p-gp inhibitor is a surfactant.

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45. A method as defined in claim 34, wherein said p-gp inhibitor is a polymer.

30 46. A method as defined in claim 45, wherein said polymer is selected from block co-polymers of poly(propylene oxide) and poly(ethylene oxide).

47. A method as defined in claim 34, wherein said p-gp inhibitor is itself a drug.

48. A method as defined in claim 34, wherein said mammal is a human.

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/ 49. A composition comprising azithromycin and a p-gp inhibitor, said p-gp inhibitor being present in an amount such that, following administration, the azithromycin has an oral bioavailability greater than 37%.

10 50. A composition as defined in claim 49, wherein said p-gp inhibitor is present in an amount such that said oral bioavailability of azithromycin is increased by at least 25%.

15 51. A composition as defined in claim 50, wherein said p-gp inhibitor is co-administered in an amount such that the oral bioavailability of azithromycin is increased by at least 50%.

20 52. A composition as defined in claim 51, wherein said p-gp inhibitor is co-administered in an amount such that the oral bioavailability of azithromycin is increased by at least 75%.

53. A composition as defined in claim 49, wherein said p-gp inhibitor is a surfactant.

25 54. A composition as defined in claim 49, wherein said p-gp inhibitor is a polymer.

55. A composition as defined in claim 54, wherein said polymer is selected from block co-polymers of poly(propylene oxide) and poly(ethylene oxide).

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55. A composition as defined in claim 13, wherein said p-gp inhibitor is itself a drug.
57. A composition which increases the C_{max} of azithromycin, comprising
5 azithromycin and a p-gp inhibitor.
58. A composition as defined in claim 57, wherein said p-gp inhibitor is present in an amount such that said C_{max} is increased by at least 25%.
- 10 59. A composition as defined in claim 58, wherein said p-gp inhibitor is co-administered in an amount such that the C_{max} of azithromycin is increased by at least 50%.
60. A composition as defined in claim 59, wherein said p-gp inhibitor is co-
15 administered in an amount such that the C_{max} of azithromycin is increased by at least 75%.
61. A composition as defined in claim 57, wherein said p-gp inhibitor is a
20 surfactant.
62. A composition as defined in claim 57, wherein said p-gp inhibitor is a polymer.
63. A composition as defined in claim 62, wherein said polymer is selected
25 from block co-polymers of poly(propylene oxide) and poly(ethylene oxide).
64. A composition as defined in claim 57, wherein said p-gp inhibitor is itself a drug.
- 30 65. A composition which increases the concentration of azithromycin in a cell or a tissue, comprising azithromycin and a p-gp inhibitor.

66. A composition as defined in claim 65, wherein said p-gp inhibitor is present in an amount such that said increase is at least 25%.

5 67. A composition as defined in claim 66, wherein said p-gp inhibitor is co-administered in an amount such that said increase is at least 50%.

68. A composition as defined in claim 67, wherein said p-gp inhibitor is co-administered in an amount such that said increase is at least 75%.

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69. A composition as defined in claim 65, wherein said p-gp inhibitor is a surfactant.

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70. A composition as defined in claim 65, wherein said p-gp inhibitor is a polymer.

71. A composition as defined in claim 70, wherein said polymer is selected from block co-polymers of poly(propylene oxide) and poly(ethylene oxide).

20 72. A composition as defined in claim 65, wherein said p-gp inhibitor is itself a drug.

73. A kit comprising:

25 (1) a therapeutically effective amount of a composition comprising azithromycin, plus a pharmaceutically acceptable carrier or diluent, in a first dosage form;

(2) a therapeutically effective amount of a composition comprising a compound which is a p-gp inhibitor, plus a pharmaceutically acceptable carrier or diluent, in a second dosage form; and

30 (3) a container for containing said first and second dosage forms.

74. A kit as defined in claim 73, adapted for administration to a human.
75. A kit as defined in claim 73, further comprising directions for the
5 administration of said compositions.